
1. *Journal of the American Medical Association*, 2000; 284: 2689-2695.



Our Reference: AIENL/19/04

Schedule of Records

RECORD NO.	TITLE OF RECORD	DATE	DECISION
1	ESB Networks Environmental Performance Report 2017	08/05/2019	Granted
2	May Fluid Leakage Report	30/05/2019	Redacted Article 8(a)(i)
3	Email Moneypoint SF6 Leaks	27/05/2019	Granted
4	Email Re: 2018 F-Gases Data Request ESB	02/05/2019	Redacted Article 8(a)(i)
5	Email Table Moneypoint SF6	28/05/2019	Redacted Article 8(a)(i)
6	Email Moneypoint SF6	28/05/2019	Redacted Article 8(a)(i)



NETWORKS

**ESB Networks
Environmental Performance Report
2017**

Issue date: 8th May 2019

Issued by: Safety Health and Environment
ESB Networks

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Introduction

ESB Networks complies with a number of requirements relating to the environment contained in the Distribution System Operator (DSO) licence and the Transmission System Owner (TAO) licence. Condition 30 of the DSO licence and condition 22 of the TAO licence require the respective licence holders to:

- Comply with all current and future European Union and Irish Environmental Laws, as well as directions by the Commission for Energy Regulation in respect of its duties relating to the Environment.
- Maintain an Environmental Policy setting out how it will comply with its duties and obligations under these laws and directions.
- Report annually to the Commission for Energy Regulation on its environmental performance.

This report has been prepared by ESB Networks on behalf of the DSO and TAO for the year ending December 2017.

1. ESB Networks Policy Statement on the Environment

ESB Networks Environmental Policy Statement approved by the Executive Director ESB Networks commits us to:

- Conduct our activities and those undertaken on our behalf in an environmentally responsible manner and in compliance with all applicable legal and other requirements and company policies and standards related to our environmental aspects.
- Take account of environmental considerations in all planning and decision making.
- Review our environmental programme annually to ensure continual improvement in our environmental performance and to provide a framework for setting and reviewing environmental objectives and targets.
- Make continuous efforts to maximise the energy efficiency of our networks.
- Minimise the production of all waste as far as practicable, promptly recover all litter found at Networks locations and dispose of all residual wastes in a safe and responsible manner.
- Provide adequate resources to minimise environmental risks and to prevent pollution.
- Record and respond swiftly to all complaints on environmental matters.
- Minimise significant environmental risks and have emergency response plans in place to address major environmental hazards.
- Act responsibly in our use of national environmental resources.
- Develop and maintain effective environmental management and audit systems.
- Promote environmental awareness to staff, contractors and our suppliers.
- Provide the necessary training and support to staff on environmental matters.
- Make our Environmental Policy available to all staff, contractors and all interested stakeholders.

Note: See most recent Policy Statement on the Environment (**Attachment**)

2. Compliance with legislation

During 2017, ESB Networks was in substantial compliance with all applicable environmental legislation. There were no prosecutions during the year.

3. Environmental Performance

Environmental Management System Development including Risk Management and Emergency Response Plans

ESB Networks is committed to continual improvement in the manner in which it impacts on the environment. During 2017 significant progress was made to ensure that ESB Networks effectively manages its environmental responsibilities.

In December 2010, ESB Networks achieved ISO 14001:2004 certification for its Environmental Management System. Since then regular bi-annual external surveillance audits have been undertaken. During 2017, two external surveillance audits were carried out by ESB Networks external certification body, Certification Europe, against the requirements of the ISO 14001 standard. These audits sampled a range of activities within the scope of ESB Networks certification. The following audits were undertaken as part of the process:

June 2017

- Systems Audit
- Meetings with Divisional Manager Distribution and Customer Services Midwest and Engagement and Support Manager ESB Networks
- ESB Telecoms, Ballyouskill Hill Site Mast, Co Kilkenny
- Bellacorrick - Castlebar 110kV Line Upgrade Project, Co Mayo
- ESB Network's Galway Planner Group – Overview
- Poling Contractor – Low Voltage Pole Replacement Works, Dalton Place, Salthill, Galway
- ESB Networks Construction Crew – Low Voltage Network Replacement, Whitestrand Road, Galway
- Timber Cutting Contractor – MV Timber Clearance, Co Galway

November 2017

- Systems Audit
- Meetings with:
 - Divisional Manager Team, Distribution and Customer Services, Dublin South
 - Networks Operations and Distribution Control Centre Staff
 - Networks Controls and Governance Manager
 - Manager Transmission and Distribution Overhead Lines, Asset Management
 - Change and Engagement Manager – Smart Metering Project
 - ESBI
- Leopardstown Road Depot
- Naas Depot
- Fleet & Equipment Garage, Broomhill Road, Tallaght, Dublin
- ESB Networks Overhead Line Crew - Monread 110kV Radio Site
- ESB Networks Underground Construction Crew – Housing Est, Co Kildare
- ESB Networks Construction Crew and Poling Contractor – LV Line Diversion Barnamire, Enniskerry, Co Wicklow
- Timber Cutting Contractor – Roadstone Quarry, Fassaroe, Co Wicklow
- Timber Cutting Contractor – Curtlestown Lower Co Wicklow
- ESB Networks Crew – Service Alteration, Pearse Villas, Sallynoggin, Co Dublin
- Waste Management Systems Review

No Non Conformances were noted by the Auditors. A number of opportunities for improvement were recommended by the auditors and ESB Networks has incorporated these in future EMS improvement programmes where deemed appropriate.

The external surveillance audit programme was complimented by an internal audit programme which focussed on a representative number of locations and range of activities and operations within scope of certification. Activities and operations with potentially higher environmental risk were prioritised as part of this programme.

The existing internet based “on line” Register of Environmental Legislation continues to be used and associated implications of relevant environmental legislation are addressed as an integral element of the system.

The EMS was supported by FileHub, a new ESB Network’s Document Management System, and a specific Sharepoint IT application containing all the latest information that management and staff require in order to comply with the requirements of the ISO 14001 standard. The Waste Management Sharepoint sub site contains management information, statistics and Waste Management Contractor’s licence and permit details. An “on line” Environmental Waste Register System which enables the recording of waste collections by relevant Waste Management Contractors was also maintained.

The Environmental Management System continues to provide a framework to effectively address all relevant requirements as outlined in the ISO 14001 standard, including environmental risk assessment and emergency response plans.

During 2017 ESB Networks commenced using the Internal Audit Module functionality on Shield, ESB’s corporate wide Environmental Health & Safety IT System to complete scheduled EMS Internal Audits. Shield’s Incident Module continues to be used to record all reported environmental incidents and complaints.

During 2017, significant progress was made on environmental programme identified objectives and related initiatives and projects:

- Depot municipal solid waste recycling rate of 72% achieved. The overall municipal solid waste recycling rate for the year was 73% (includes waste collected from technical facilities).
- Landfill diversion rate of 98% achieved for overall waste streams/retired materials generated/collected.
- Contract review meetings and regular engagement with appointed waste and scrap disposal companies to ensure ongoing satisfactory contracts management.
- Compared to 2016, electricity usage in buildings was up 4.2%, and vehicle fleet fuel consumption was up 3%. The Met Éireann Summary Report for 2017 noted that temperature and rainfall were near average for the year.
- ESB Networks Oil Storage and Transportation Improvement Project continued in 2017:
 - Oil and diesel storage infrastructure upgrades were completed at a number of Depots and ESB Telecoms Sites. New storage tanks including upgrades to existing oil/diesel storage facilities were completed at Carrick On Shannon, Dungarvan, Dundalk, Wilton and Galway, and at ESB Telecoms Hill sites at Bencroy, Nagles Hill and Truskmore. New oil tanks were also installed at Finglas, Wilton and Inchicore for HV stations transformer maintenance requirements.
 - Bunded shelters, bunded pallets and bunded shelving and transformer oil containment bags were procured as and when required to store damaged oil filled plant and equipment, chemicals and other identified hazardous materials.

- Mobile oil spill containment kits and consumables were provided at Depots, HV Stations, Fleet and Equipment Garages and in relevant ESB Network's fleet.
- Regular ground water and surface water monitoring continued at ESB Networks national wood pole storage facility in Killeel Co Kildare. There was ongoing engagement with and information provided to Kildare County Council regarding ESB Network's Environmental Management Plan for the site.
- Creosote abatement matting trials were further progressed at Newcastlewest Depot and a product identified for potential use underneath wood pole storage bays.
- On-going successful engagement with the Environment Protection Agency in relation to ESB Network's PCB Management Plan requirements and associated update on the Agency's Eden EPA's online reporting system.
- Memorandum of Understandings in relation to how illegal dumping of waste, litter and graffiti at unoccupied ESB Network's facilities are dealt with by ESB Networks and both Dublin City Council and South Dublin City Council continued to operate effectively.
- The development of a bio hazardous waste training and awareness video was completed during 2017. This video demonstrates to ESB Networks staff, safe procedures when handling and disposing of biohazardous waste and in particular "needles & sharps" which are often found at ESB Networks unaccompanied sites.
- ESB Network's appointed waste management companies were engaged when deemed necessary to compliantly clean up and dispose of waste illegally dumped at ESB Network's facilities.
- At the end of 2017, water monitoring technology was maintained at ESB Networks depots. This technology allows for real-time and historical monitoring of water usage at these premises via automatic meter reading (AMR) data sent to an external portal web-site, which can be accessed on-line by ESB Networks staff.

SMS text alerts are also sent to designated staff when pre-determined alarm thresholds are exceeded, to facilitate excessive usage and leakage monitoring.

- ESB Networks continues to adhere to the requirements of the ESB Group Biodiversity Policy.
- Proactive engagement was maintained with ESB Networks timber cutting framework contract manager, supervisors and staff, to facilitate compliance with relevant associated environmental requirements.
- Proactive engagement was maintained with ESB Networks Asset Management to facilitate continuous improvement in operations relating to oil/oil filled equipment, wood poles, and SF₆ gas management.
- Contractor Management Procedure 12 (CMP 12) Environmental Management, continued to issue as part of tender documentation for all relevant contracts.
- An environmental training and awareness course was delivered as part of the annual apprentice induction programme.
- An environmental spill response course developed in-house was delivered to staff engaged in oil/oil filled equipment handling as and when required.

- Co-operated with WERLA (Waste Enforcement Lead Authorities) request for information on ESB Networks Construction Projects that had the potential to generate Construction and Demolition Wastes.

4. Waste Management

During 2017, suitable arrangements were maintained and further enhanced where appropriate, for the compliant and effective management of waste arising at depots, stores, HV stations and sites nationwide. An appropriate infrastructure exists to facilitate the segregation and safe storage of waste pending its removal from site for recycling, treatment or disposal. All waste management contractors were aware of their obligation to have appropriate permits and licences.

ESB Networks is committed to becoming a leading company in the area of sustainability. The effective management of waste is seen as a key environmental management objective in supporting this strategy. During 2017, significant progress continued in this regard, some of the key achievements/initiatives being:

- Ongoing effective management of contracts for non-hazardous and hazardous waste management service provision, scrap metal, oil filled equipment and empty cable drum disposal nationwide.
- Continued targeted enhanced management reporting on waste volumes/costs to support recycling, landfill diversion of waste and overall cost reduction.
- Landfill diversion rate of 98% achieved for overall waste streams/retired materials generated/collected when service provider post collection further recovery/recycling is taken into account.
- Depot recycling rate of 72% achieved for municipal solid waste.
- ESB Networks EMS IT Application which includes:
 - Advice on how to improve recycling at depots, sites and offices.
 - An interactive recycling map and associated management information reports indicating the current municipal solid waste recycling rates for depots and stores nationwide.
 - Information on a wide range of signage/labels to facilitate proper waste segregation.
- Further enhancement of hazardous waste collection infrastructure at depots and fleet and equipment garages nationwide.
- Continued use of 1,100 litre wheelie bins for general waste, which facilitates more compliant waste storage, collection, and the use of service provider on board weighing technology.
- Provision of specific closed skips at relevant depots primarily in the greater Dublin area for the collection of illegally dumped waste at ESB Networks unoccupied technical facilities. Separate associated management reporting is in place.
- Standardised office waste management systems maintained.
- Continued focus on raising awareness regarding waste management legislative requirements, related recycling targets, and the need to maximise landfill diversion of waste.

In 2017, ESB Networks generated 6,527 tonnes of waste/retired materials, a 7% decrease when compared to 2016. Statistics are compiled based on management information provided by all contracted service providers. The overall quantity of general waste collected was 622 tonnes. Over the course of the year, 90% of waste streams/retired materials collected, were diverted from landfill. If we take into consideration municipal solid waste contractor's post collection further processing, recycling/recovery, the overall landfill diversion rate increases to 98%.

4.1 Waste Statistics (classification and quantities):

The following graphs provide a breakdown of the overall waste/retired materials generated during the year 2017 and makes comparison with the corresponding figures for the year 2016 where relevant.

Note:

- Statistics do not include waste generated from major construction projects where appropriately permitted and licenced operators are appointed for waste disposal as part of overall project management.
- 2015 figures are included for statistical continuity purpose only.
- Percentages are rounded to nearest whole figure.

Figure 4.1.1 presents a breakdown of the various categories of wastes and retired materials generated by the ESB Networks business in 2017. Scrap metals, oil filled equipment, soil and rubble, wood, and wooden cable drums accounted for 73% of all waste collected during 2017. General waste accounted for 10% of all wastes generated, and is non-recyclable type waste, and waste that is not currently segregated for recycling at ESB Networks locations. However, 67% of general waste was subsequently recovered by waste management service providers, as part of post collection further segregation/recovery at their facilities, thereby reducing the overall waste sent to landfill to 2%. There was an overall 9% increase in general waste tonnage in 2017 when compared with 2016.

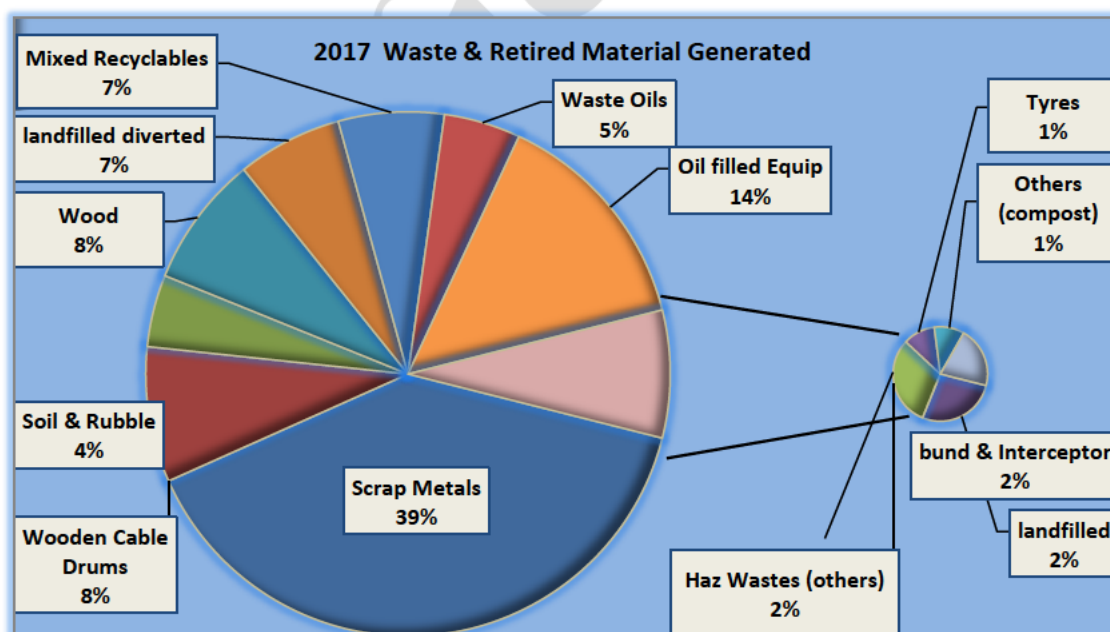


Figure 4.1.1

Figure 4.1.2 compares 2015, 2016 and 2017 tonnage quantities for the principal waste/retired material categories. During 2017, ESB Networks generated 6,527 tonnes of waste/retired

materials, compared to 7029 tonnes in 2016. This represents an overall decrease of 7% when compared with 2016.

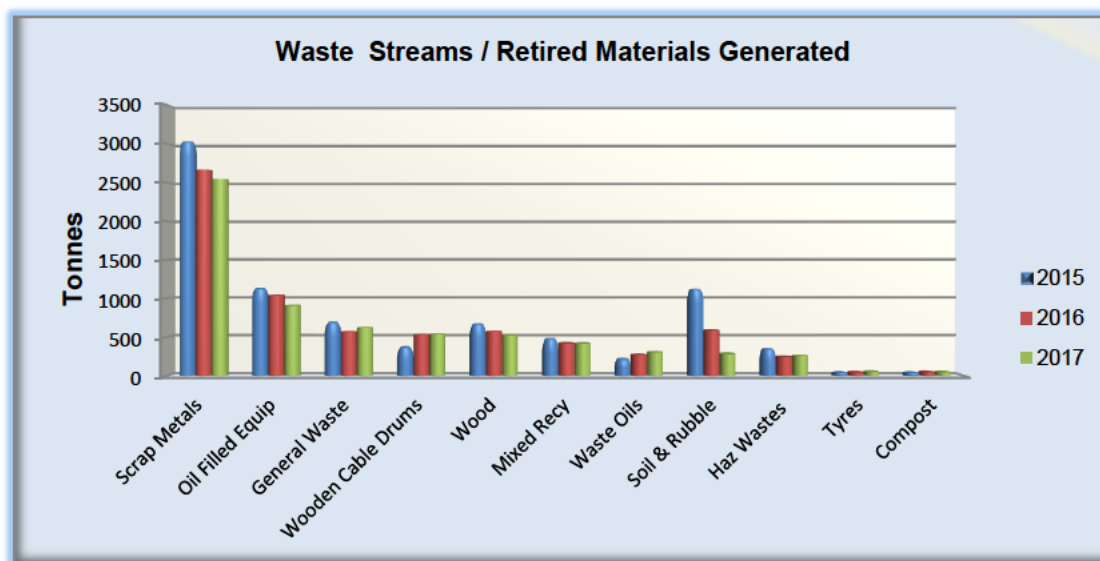


Figure 4.1.2

Table 1. Waste Streams / Retired Materials Generated

Waste Stream/Retired Material	Tonnes Per Year		
	2015	2016	2017
Scrap Metals	3037	2662	2546
Oil Filled Equip	1136	1044	912
General Waste	694	570	622
Wooden Cable Drums	375	533	540
Wood	677	576	524
Mixed Recyclables	483	423	421
Waste Oils	222	276	306
Soil & Rubble	1127	593	288
Hazardous Wastes	354	248	261
Tyres	53	51	56
Compost	52	53	52
Total	8210	7029	6527

4.2 Non-Hazardous Wastes

Figure 4.2.1 compares the tonnage of non-hazardous municipal solid waste collected in 2015, 2016 and 2017.

The tonnage of rubble and spoil decreased by 51% in 2017 when compared to 2016. Tonnage of wood collected decreased by 9%. Overall, mixed dry recyclables tonnage which consists of mixed dry waste, plastic, glass, paper and cardboard was similar to 2016 levels. Waste tyres and compost tonnage was similar to 2016 levels also.

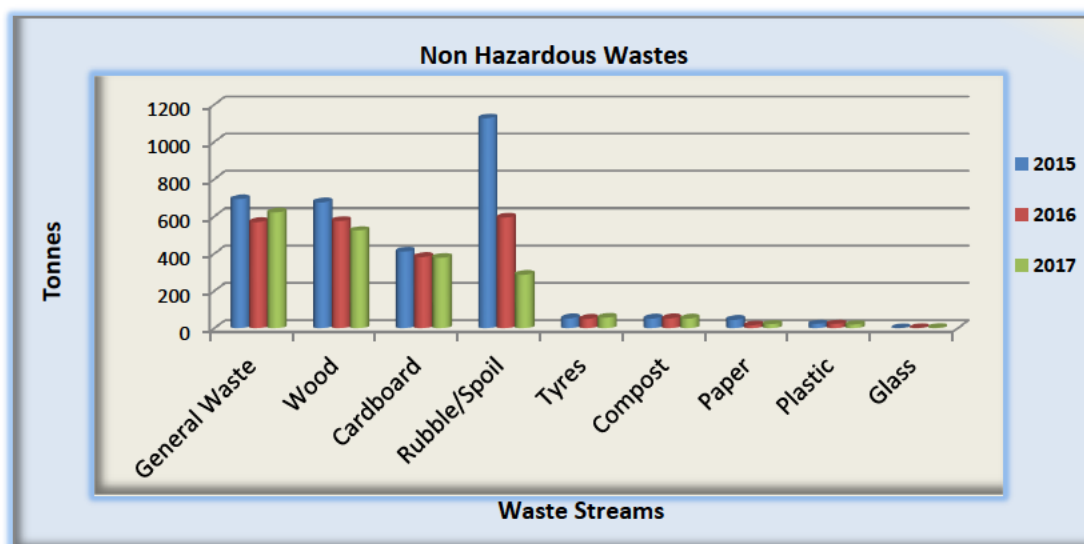


Figure 4.2.1

Table 2. Non-Hazardous Wastes

Non-Hazardous Waste Streams	Tonnes Per Year		
	2015	2016	2017
Rubble/Spoil	1127	593	288
Wood	677	576	524
General Waste	694	570	622
Cardboard	412	383	379
Paper	47	16	21
Tyres	53	51	56
Compost	52	53	52
Plastic	24	23	19
Glass	0	1	2
Total	3086	2266	1963

In 2017, the overall quantity of general waste collected from ESB Networks facilities and sites was 622 tonnes, compared with 570 tonnes in 2016.

Of the 622 tonnes, 419 tonnes was subsequently diverted from landfill by service providers off-site at their waste transfer station processing facilities.

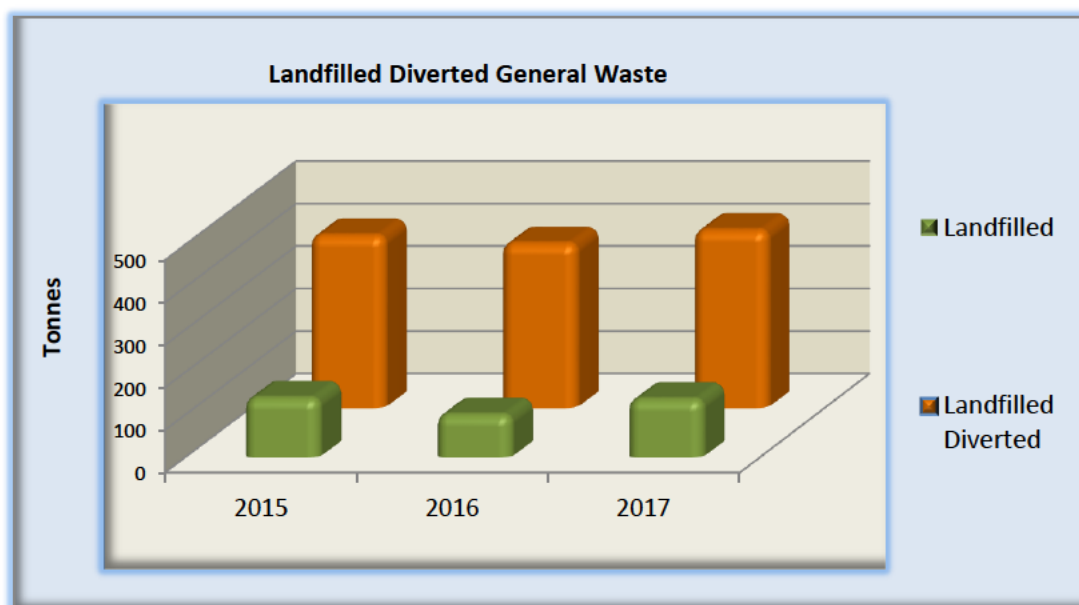


Figure 4.2.2

Table 3. General Waste Treatment

Treatment	Tonnes Per Year		
	2015	2016	2017
Landfilled	141	102	138
Landfilled Diverted	407	388	419
Total	548	490	557

Note: Table excludes general waste reported by Scrap Metal Companies (65 tonnes in 2017), which is included in the overall General Waste figure (622 tonnes) for reporting purposes.

4.3 Hazardous Wastes

The total tonnage of hazardous waste collected in 2017 was 1479 tonnes, which represents a 6% decrease in tonnage when compared with 2016 (Fig 4.3.1).

During 2017, 912 tonnes of retired oil filled equipment was collected representing a 13% decrease, when compared to 2016.

Waste oils collected increased by 11%. Waste water, bund and interceptor waste decreased by 8%. There was a 10% decrease in contaminated soil tonnage. Oil filters/solid oily waste tonnage decreased by 11%. Tonnage of creosote contaminated materials increased by 88%, and tonnage of batteries decreased by 19%.

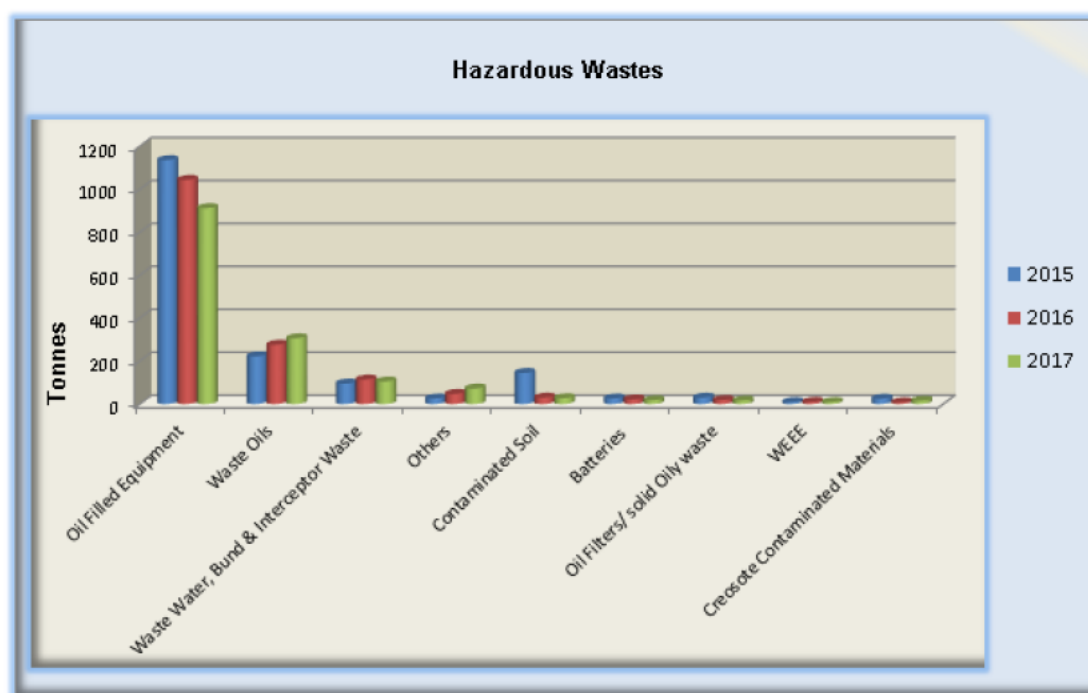


Figure 4.3.1

Table 4. Hazardous Wastes

Hazardous Waste Streams	Tonnes per Year		
	2015	2016	2017
Oil Filled Equipment	1136	1044	912
Waste Oils	222	276	306
Waste Water, Bund & Interceptor Waste	95	114	105
Others	26	47	72
Contaminated Soil	145	30	27
Batteries	26	21	17
Oil Filters/ solid Oily waste	30	18	16
WEEE	9	10	9
Creosote Contaminated Materials	25	8	15
Total	1714	1568	1479

*Others: Chemicals, Paints, Empty Paint Containers, Mixed Fuels, Resins, Silica Gel, Inorganic and Organic Waste

4.4 Scrap Metal

The total reported tonnage collected by appointed scrap metal service providers in 2017 was 2,546 tonnes, which is a 4% decrease when compared to 2016 levels (Fig. 4.4.1).

There was a 36% increase in aluminium, a 20% decrease in ferrous metals, and a 28% decrease in copper tonnage. The overall tonnage of lead collected decreased by 88%. There was a 19% decrease in the amount of associated general waste collected (65 tonnes in 2017 versus 80 tonnes in 2016). ESB Networks is charged by scrap metal companies for the disposal of general waste and continual efforts are ongoing to minimise the amount of general waste

being placed in scrap metal bins. The associated general waste tonnage (65 tonnes) has been included in the overall general waste tonnage statistics provided.

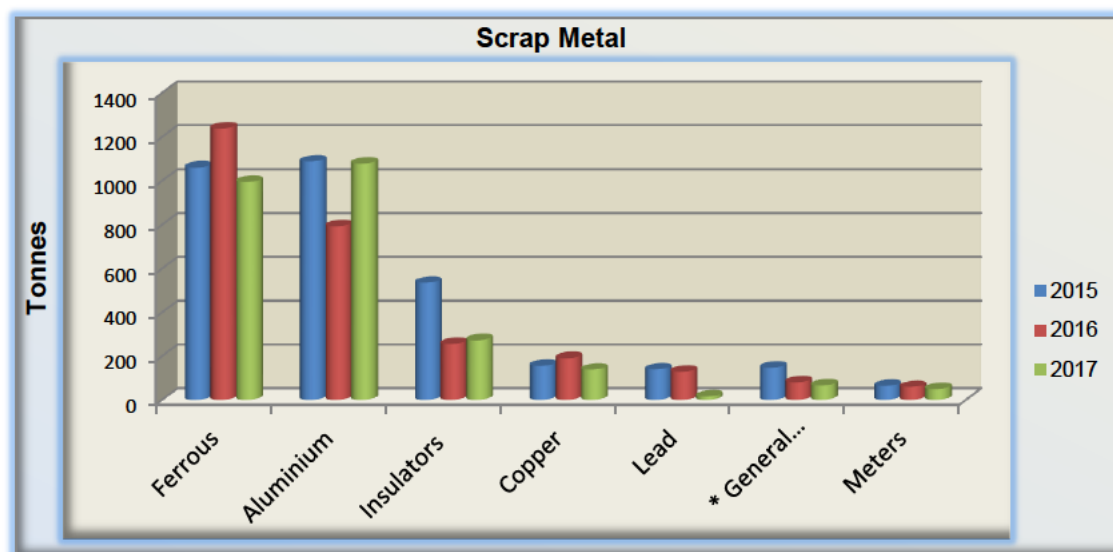


Figure 4.4.1

Table 5. Scrap Metals

Scrap Metal	Tonnes Per Year		
	2015	2016	2017
Ferrous	1060	1238	994
Aluminium	1087	793	1078
Insulators	534	255	272
Copper	155	190	137
Lead	138	128	15
* General Waste	146	80	65
Meters	63	58	49
*Total (excluding General Waste)	3037	2662	2546

4.5 Wooden Cable Drums

The total reported tonnage of wooden cable drums collected by the appointed service provider in 2017 was 540 tonnes, an increase of 1% when compared with the 2016 figure (Fig. 4.5.1). Of the overall 540 tonnes collected, 519 tonnes were reused, while 21 tonnes were recycled.

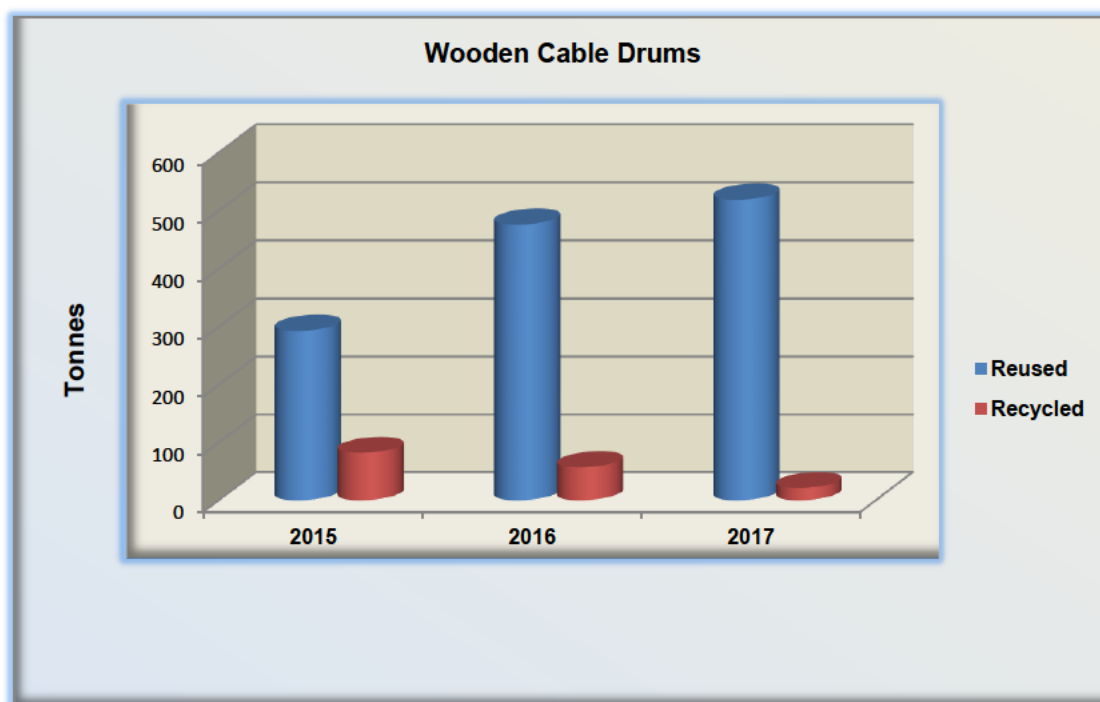


Figure 4.5.1

Table 6. Wooden Cable Drums

Wooden Cable Drums	Tonnes per year		
	2015	2016	2017
Reused	293	476	519
Recycled	82	57	21
Total	375	533	540

5. Environmental Incidents

While every effort is made to prevent their occurrence, environmental incidents may happen as a result of ESB Networks day to day business operations. During 2017, there were 50 reported environmental incidents on Shield, ESB's corporate wide Environmental Health and Safety IT System. Overall reporting of incidents improved during the year, hence the increase in number when compared with previous years.

Oil spills accounted for 36% of all reported incidents in 2017 (Figure 5.1.1) and there were no oil spills associated with security related incidents during the year.

Illegal dumping of waste and litter accounted for 30% of reported incidents during 2017, this is primarily as a result of the ongoing effective operation of related Memorandum of Understandings with Dublin City Council and South Dublin City Council in relation to reporting and management of such incidents.

ESB Networks uses appropriately licenced and permitted environmental incident response contractors, and environmental consultant services, and liaises with relevant local authorities in connection with environmental incident management as necessary. Spill response training is delivered to staff engaged in oil and oil filled equipment handling, and a range of related Guidelines are available.

Spill kits and associated consumables are also available in depots, stores, HV stations and in fleet and equipment vehicles as required.

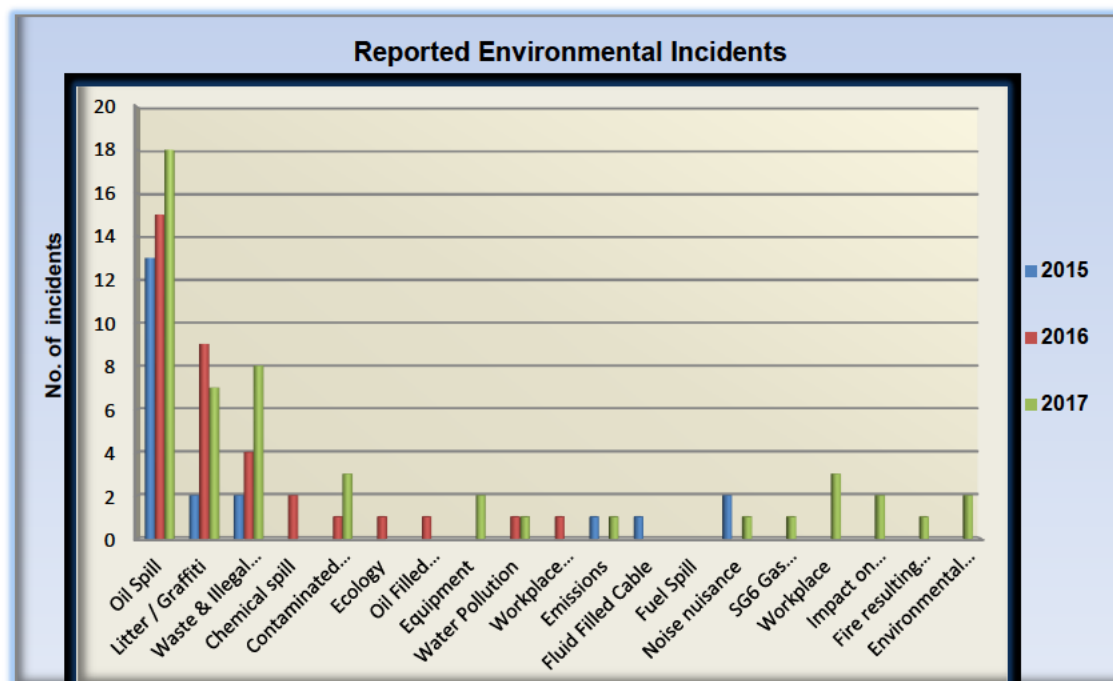


Figure 5.1.1

Table 7. Environmental Incidents

Reported Environmental Incidents	Incidents per year		
	2015	2016	2017
Oil Spill	13	15	18
Litter / Graffiti	2	9	7
Waste & Illegal Dumping	2	4	8
Chemical spill		2	
Contaminated soil		1	3
Ecology		1	
Oil Filled Equipment Management		1	
Equipment			2
Water Pollution		1	1
Workplace Design Issue		1	
Emissions	1		1
Fluid Filled Cable	1		
Fuel Spill			
Noise nuisance	2		1
SG6 Gas handling/Storage			1
Workplace			3
Impact on conservation area/ national monument site			2
Fire resulting in environmental incident			1
Environmental Complaint			2
Totals	21	35	50

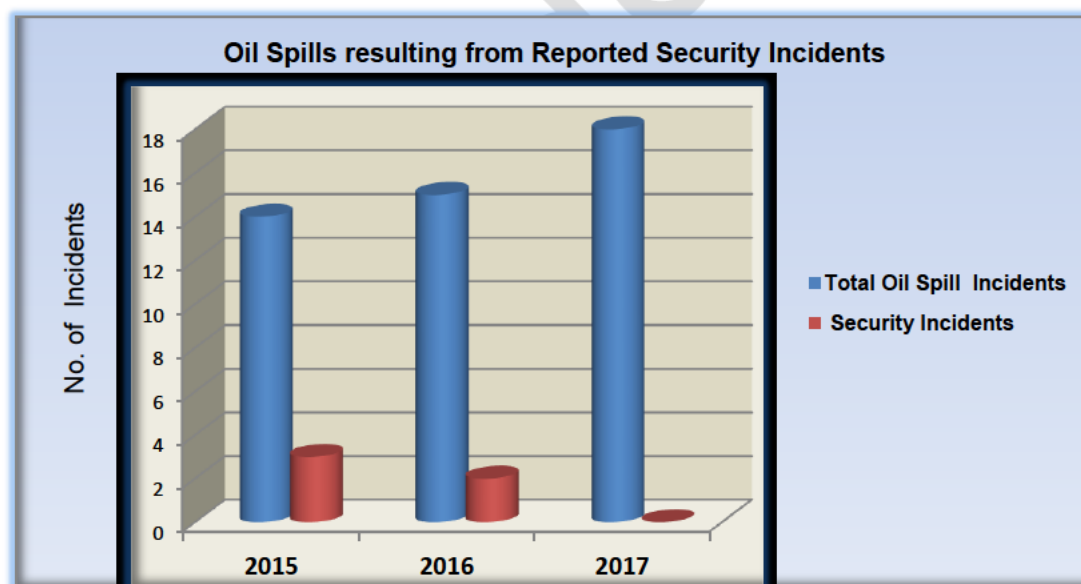


Figure 5.1.2

Table 8. Oil Spills

Oil Spills	Incidents per year		
	2015	2016	2017
Total Oil Spill Incidents	13	15	18
Security Related Oil Spill Incidents	3	2	0

6. HV Fluid-Filled Cables

During 2017, 15,201 litres of cable insulating fluid leaked from ESB's high voltage cable network. The 2017 figure represents a 3% increase in leakage from 2016 when 14,721 litres of fluid leaked. ESB Network's "Management of Fluid Filled Cables policy" set a maximum cable leakage volume objective of 15,000 per annum in 2017. 2017 leakage volume, although close, marginally exceed this target.

47% of the entire 2017 cable fluid leakage was attributable to one circuit, namely Harold's Cross to Ringsend 110 kV Cable. Due to the relatively long length of the cable and the congested urban installation environment, leak location detection during 2017 was not possible, even with the use of ESB's specialist state of the art leak tracer equipment.

Third party damage to ESB's cable network remains one of the major caused of cable fluid leaks. For instance, the Inchicore – Poolbeg 220 kV Cable had two significant cable fluid leaks in 2017 directly attributable to construction activity.

The breakdown of the fluid leaks was as follows:

- 220 kV Cable Network = 2,546 litres
- 110 kV Cable Network = 7,129 litres
- 38 kV Cable Network = 5,526 litre

7. SF6 Gas

Sulphur hexafluoride (SF6) is used in a significant portion of ESB Network's high-voltage switchgear assets on the transmission and distribution networks.

It is used because of its very high electrical insulating properties and allows the switchgear to work efficiently and safely. Emissions rates for SF6 gas are reported to the Environmental Protection Agency (EPA) on an annual basis in line with EU Regulation 517/2014.

In 2017, approximately 872kgs of SF6 was emitted representing 0.50% of the total inventory of SF6 employed.

The objective is to maintain leak rates at less than 0.5% per annum.

It is anticipated that further improvements will be observed in the 2018 report with the removal of older higher risk assets from the system.

The gradual improvement is attributable to significant steps taken within the Networks Business to continually develop and improve compliance with EU Regulation 517/2014. These steps include:

- Revised handling procedures (and communication of same) to mitigate risk of SF6 loss
- Training and Certification for those involved in handling SF6
- Process Improvements related to recording of SF6 gas usage
- Further work to improve accuracy of SF6 Gas Inventory across all assets
- Nationwide project to remove & rationalise any outstanding locally held SF6 gas bottles
- Nationwide briefing & communication of the requirements of EU Reg 517/2014

Work on an updated ESB Networks Policy is underway on the management of SF6 gas and will further underpin and help improve compliance with EU Regulation 517/2014 requirements within the business.

8. Communication/Stakeholder Management

During 2017, ESB Networks continued to engage with a wide range of bodies on environmental issues relevant to the business. These included the Commission for Regulation of Utilities (CRU), EirGrid, Local Authorities, Government and Local Representatives, An Bord Pleanála, Irish Farmers Association (IFA), National Parks and Wildlife Service (NPWS), Birdwatch Ireland and bodies representing various industries.

Other areas which were progressed during 2017 were as follows:

- Significant progress continued during 2017 in the construction of high voltage power lines, following agreement with the Irish Farmers Association (IFA) in early 2009. In mid 2017, the 2009 agreement was supplemented with an agreement regarding the Refurbishment and Uprate of 110kV and 220kV lines. This agreement provides for significant Environmental benefits through optimising the use (through increased capacity) of the existing Grid and minimising the need for additional infrastructure.
- Regular dealing with Access to Information on the Environment (AIE) requests from members of the public, associated internal appeals and appeals to the Office of the Commissioner for Environmental Information (OCEI).
- Dealing with Freedom of Information (FOI) Requests in respect of DSO licensed activities.
- Regular interaction locally and centrally with Landowners, the Irish Farmers Association (IFA) and EirGrid in addressing Landowner issues and concerns in respect of new build and uprated Lines.
- Co-sponsorship of an external Environmental research project relating to Electricity Infrastructure and Birds.
- Active participation in meetings organised by the Energy Networks Association which facilitates interaction with UK DNOs in relation to current practices in relation to land access issues associated with Electricity Infrastructure Development.
- Attendance at separate meetings/conferences involving the Electricity Association of Ireland (EAI), Eurelectric, Engineers Ireland, Irish Wind Energy Association (IWEA) and Eirgrid.

From:
To: [AIERequests \(ESB Networks DAC\)](#)
Subject: FW: 2018 F-Gases Data Request - ESB
Date: 03 July 2019 10:32:06

From: (ESB Networks)
Sent: 02 May 2019 15:58
To: ESB Networks) ; (ESB Networks)
Cc: (ESB Networks) ; (Engineering and Major Projects) ; (ESB Networks - Leopardstown)
Subject: RE: RE: 2018 F-Gases Data Request - ESB

Tom,

See below highlighted figures for 2018.

In summary we have a reduction from 871.5 kgs to 707.44 kgs which amounts to a leak rate of 0.39% as compared to 0.50% in 2017. This is due in no small way to the partial retirement of Moneypoint GIS. We will see further improvements over the next 2 years as the Moneypoint GIS is fully retired.

If you have any queries let me know.

Year	Total kG	%usage ((estimated / installed)*100)		
			5 year average	3 year average
2016	836	0.53%		0.65
2017	871.5	0.50%		0.60
2018	707.44	0.39%		0.54

Rgds

| HV Station Performance | Asset Management | ESB Networks | Ext: T: +353
| M: +353 [REDACTED] www.esbnetworks.ie |

From:
To: [AIFrequests \(ESB Networks DAC\)](#)
Subject: FW: May Fluid Leakage Report 2019
Date: 03 July 2019 10:33:26
Attachments: [image002.png](#)
[image004.png](#)
[image009.png](#)

From: (ESB Networks)
Sent: 11 June 2019 10:38
To:

(ESB Networks)

<Brian.Brady@ESBNetworks.ie>; Connolly. John (ESB Networks - Wilton) <John.Connolly@esb.ie>
Subject: May Fluid Leakage Report 2019

Dear All,

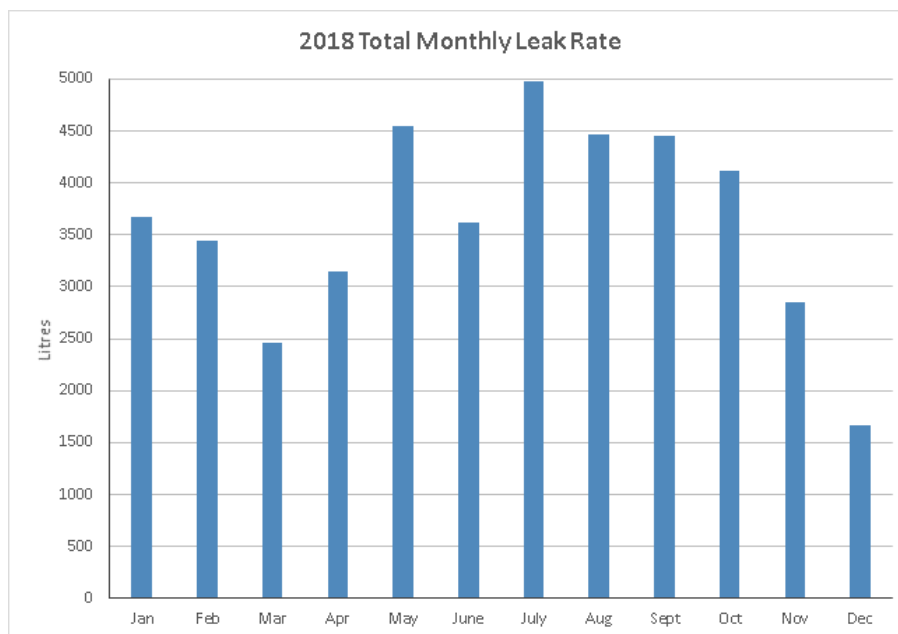
This is the cable fluid leakage report for May 2019.

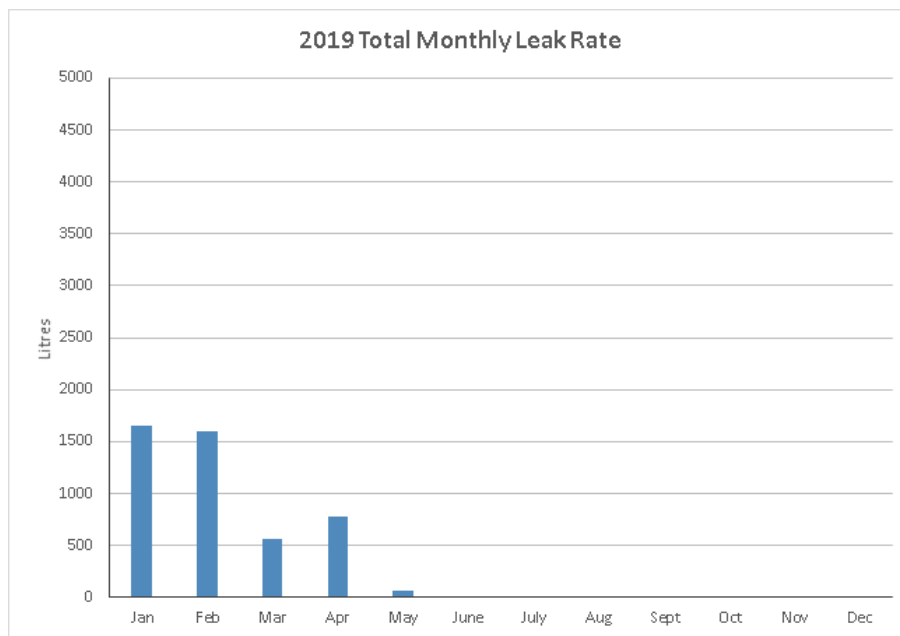
The total recorded figure for cable fluid leakage in 2018 was 43,454 litres. The policy target for ESN was 8,000 litres for 2018.

The target for 2019 is also 8,000 litres. The total leakage for the year so far is 4,660 litres. Last month, the leakage rate was 784 litres. This leakage rate would need to be improved slightly in order to achieve the 2019 target.

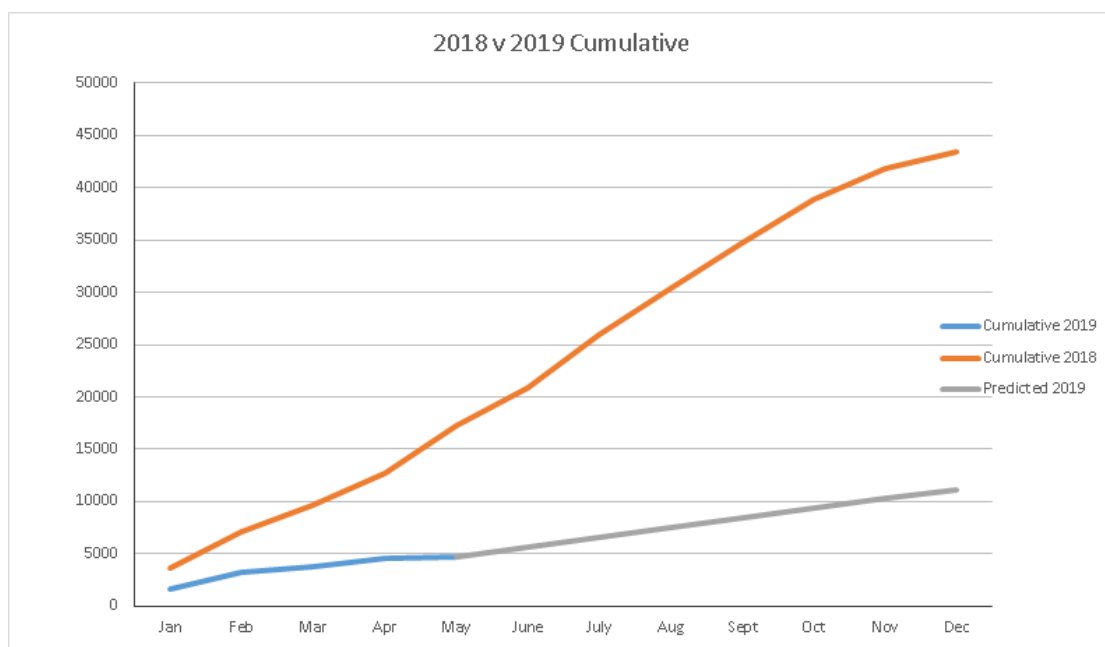
The leakage this month has decreased to 70 litres, which is a major improvement on previous months of the year. This may rise slightly again due to timing of pumping top ups.

The below graphs compare the monthly leakage rates along with 2018.





Overall predictions for the year have seen a slight decrease on the total from last month. Predicted leakage for the year last month was just over 13,440 litres and this has now dropped to 11,184 litres based on average monthly leak rates this year. If this downward trend can be continued then it's possible for the leakage to be kept within the ESB Networks policy target for 2019.



The following is the leakage per circuit in 2019:

220 kV

- Carrickmines – Poolbeg – 282 Litres

110 kV

- Francis St – Harold's Cross – 147 Litres
- Francis St – Inchicore – 274 Litres
- Harold's Cross – Ringsend – 89 Litres

38 kV (Dublin)

- Ballymun – Fairview – 80 Litres
- Bedford Row – Sherriff St – 235 Litres
- Bedford Row – South King Street – 1,576 Litres
- Clontarf – East Wall Road – 317 Litres
- Coolock – Raheny – 194 Litres

- Deansgrange – Sallynoggin – 978 Litres
- Dodder Road – Templeogue – 70 Litres
- Dun Laoghaire – Sallynoggin – 54 Litres
- Unidare – Ballymun – 85 Litres

38 kV (Cork)

- Fairhill – Kilbarry – 169 Litres
- Dennehy's Cross – Togher – 32 Litres
- Togher – Trabeg – 18 Litres
- Onslow Gardens – Churchfield – 60 Litres *Note: 3 Cork Leakage figures for April reported after publishing of May report and so are included here.

Preventative maintenance is still being carried out on Inchicore – Poolbeg along with sheath fault repairs.

Currently replacement of 550m is in progress of the Fairhill – Kilbarry circuit in Cork.

On Bedford Row – South King Street, the leak has been located and awaiting repair.

Prioritised listing for leakage elimination 2019					
Circuit Name	Total Leakage Volume 2018 + 2019 (litres)	Leak Rate (Litres/month) averaged over last 4 months	Duration of leak (months)	Environmental Ranking 1- 10	Priority for Repair based on overall analysis
Bedford Row – South King Street	2177 + 1576 Total 3753	394	24	5	Priority no.1
Carrickmines - Poolbeg	282 Total 282	70.5	3	8	Priority no.2
Francis Street - Inchicore	408 + 274 Total 682	68.5	4	7	Priority no. 3
Clontarf – East Wall Road	1049 + 247 Total 1296	65	17	7	Priority no.4
Coolock - Raheny	1164 + 194 Total 1358	25	13	6	Priority no.5

*Updated environmental rankings based on risk assessment

Regards,

From:
To: [AIErequests \(ESB Networks DAC\)](#)
Subject: FW: Moneypoint SF6 Leaks Urgent
Date: 03 July 2019 10:32:42

From:
Sent: 27 May 2019 16:13
To:
Cc:
Subject: RE: Moneypoint SF6 Leaks Urgent

Greg,

Leak volumes in Moneypoint:
2017 - 593 kgs
2018 – 350 kgs

Rgds

From: (ESB Networks)
Sent: 27 May 2019 16:06
To:)
Subject: RE: Moneypoint SF6 Leaks Urgent

Greg,

Tried calling you back – leak rates are improving as we remove the old GIS. At present there are no known SF6 leaks on the 400/220/110 kV GIS in Moneypoint.

Rgds

From:
To: [AIFrequests \(ESB Networks DAC\)](#)
Subject: FW: Moneypoint SF6
Date: 03 July 2019 10:31:47

From: (ESB Networks)
Sent: 28 May 2019 22:25
To: (ESB Networks)
Subject: RE: Moneypoint SF6

Bryan,

A somewhat detailed overview which some useful info can be extracted from...

Moneypoint GIS was first installed in 1984 consisting of 3 generator connections, 2 overhead lines and a 400/220 kV transformer connection. After a short number of years in service SF6 leaks began to appear and were mostly associated with outdoor compartments. T4002 bus duct and air insulated bushings were dismantled for a full repair in early 90's – this subsequently leaked in later years. Leaks also developed on the generator transformer/cable interface. Specialist companies were brought in to effect repairs to bus duct barriers and flanges without the need for dismantling – these were successful for a number of years. Planning for a new substation began in late 2009 (not sure just throwing a date at it) with planning permission granted in Sept 2011 (definite). The 3 year transfer programme to the new substation and subsequent decommissioning of the original 400 kV substation began in 2016 with the last remaining circuits due to be de-energised in early June 2019.

Rgds

Colin

From: (ESB Networks)
Sent: 28 May 2019 16:02
To:
Cc:
Subject: Moneypoint SF6

Greg,

See below. Give me a call to discuss.

	Moneypoint	National	National leak rate as a % of installed base
2016	600 kg	836 kg	0.53%
2017	593 kg	871.5 kg	0.50%
2018	350 kg	707.44 kg	0.39%

Rgds

Colin

